

REMARKS

Claims 1-9 and 13-45 remain in this application. Claims 10-12 have been canceled.

I. ENABLING DISCLOSURE/IMPERMISSIBLE HINDSIGHT

As a general discussion, the applicants object to the examiner's use of references throughout the Office action to teach general concepts without an enabling disclosure as well as using impermissible hindsight to reject claims. The examiner uses teachings of "general concepts" by some references in combination with other references, usually assuming the concepts are automatically interchangeable. For example, the examiner may use a reference that teaches a very specific type of computer-implemented software that is used to analyze very specific information that is obtained regarding an inspection device, to teach the concept of computer-implemented pattern recognition inspection.

Although a reference need not expressly suggest the claimed invention, the disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation.¹ The fact that a reference teaches a specific type of inspection software does not amount to an enablement of all types of inspection software. Nor does a reference with a specific sensor configuration, even though the reference states that other sensors may be used, enable all sensor configurations for all measurements. If this were the case, there would only be one patent on an inspection system that uses sensors and computer-implemented software as all others would be invalid. Clearly that is not the case as the examiner himself has used multiple references.

In determining the differences between the prior art and the claims, the question under 35 U.S.C. §103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.² Additionally, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.³ The examiner focuses only on his own justifications for combining the

¹ *Elan Pharm., Inc. v. Mayo Foundation for Medical and Education Research*, 346 F.3d 1051, 1054 (Fed. Cir. 2003).

² *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782 (Fed. Cir. 1983).

³ *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

references and fails to analyze the very strong reasons why references should not be combined. This, unfortunately, is very clearly “piecemeal” impermissible hindsight vision afforded by the applicants’ disclosure that the examiner is very specifically to avoid. The applicants urge the examiner to consider the references used as a whole when making a combination, and not just picking and choosing which portions of which references might be convenient to combine to impermissibly “re-create” the present invention.

The applicants feel that the examiner’s “off-the-cuff” generalities regarding enablement of all types of inspection software and all types of sensor configurations are unsubstantiated. The applicants also object to the impermissible hindsight vision afforded by the applicants’ disclosure. The applicants respectfully request that the examiner reconsider the use of these remarks when examining the present invention.

II. CLAIM REJECTIONS – 35 U.S.C. § 102

A. Law

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.⁴ The identical invention must be shown in as complete detail as is contained in the ... claim.⁵ In addition to disclosing every claim limitation, an anticipatory prior art reference must enable the practice of the invention and describe it sufficiently to have placed it in the possession of a person of ordinary skill in the field of the invention.⁶

B. Rejection of Claims 15, 17, 18, 21, and 31 Under 35 U.S.C. § 102(b) as Anticipated by *Ortiz et al.*

The examiner rejected claims 15, 17, 18, 21, and 31 under 35 USC § 102(b) as anticipated by *Ortiz et al.* (US Patent No. 4,988,875).

Claims 15, 17, 18, 21, and 31 are not anticipated by *Ortiz et al.* because *Ortiz et al.* does not teach analyzing each image separately but instead teaches detecting the change in video signal magnitude between at least two images. Claims 15, 17, 18, 21, and 31 require capturing images of

⁴ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

⁵ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

⁶ *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

the outer circumference of the tubing with the imaging devices, transmitting the images to a processor, and processing each image separately.

The examiner states that *Ortiz et al.* teaches analyzing each image separately. However *Ortiz et al.* only teaches analyzing each video signal from each of the cameras separately, each video signal being made up of multiple images. *Ortiz et al.* discloses that the motion detector circuits 112 detect the variations in the magnitude of a video signal as the video signal changes from an image that is defect free to a signal from an image containing a defect.⁷ This necessitates that the motion detector circuit 112 analyze at least two images. Thus, *Ortiz, et al.* does not teach analyzing each image separately and does not disclose all of the limitations of claim 31. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 15, 17, 18, 21, and 31.

Additionally, the examiner appears to be confused between a video signal from a single camera and the multiple individual images that make up that video signal. The examiner states that there are as many motion detector circuits as there are cameras, with each detector responding to its associated camera signal. The examiner then uses inconsistent terminology to assert that therefore, each camera image is analyzed separately. Having a detector associated with each camera may teach analyzing each video signal separately; however, it does not follow that each of the multiple images that make up an individual video signal are analyzed separately.

III. CLAIM REJECTIONS – 35 U.S.C. § 103

A. Law

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.⁸ If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the following tenets of patent law must be adhered to: (a) the claimed invention must be considered as a whole; (b) the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (c) the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (d) reasonable expectation of success is the standard

⁷ *Ortiz*, column 7, lines 7-8.

⁸ *In re Rouffet*, 149 F.3d 1350, 1355, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

with which obviousness is determined.⁹ Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure.¹⁰

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.¹¹ Thus, a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references.¹² Additionally, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.¹³

Also, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.¹⁴ In addition, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.¹⁵

B. Rejection Of Claims 15, 17, 18, 21, 22, 23, 31, And 32 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination of *Ortiz et al.* And *Kanzaka et al.*

1. Examiner's Comments

The examiner rejected claims 15, 17, 18, 21, 22, 23, 31, and 32 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* (U.S. Patent No. 5,680,473A).

⁹ *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986).

¹⁰ *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991).

¹¹ *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); *see also In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992).

¹² *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *see also In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d 1161 (Fed. Cir. 1999).

¹³ *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

¹⁴ *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

¹⁵ *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959).

2. Claims 15, 17, 18, 21, 22, 23, 31, and 32

The applicants respectfully submit that a *prima facie* case of obviousness has not been established with respect to claims 15, 17, 18, 21, 22, 23, 31, and 32 because the prior art references do not teach or suggest all the claim limitations. Specifically, *Ortiz et al.* and *Kanzaka et al.* do not teach analyzing or processing each image separately, as claims 15, 17, 18, 21, 22, 23, 31, and 32 require.

The examiner is incorrect in his interpretation of *Ortiz et al.* The examiner states that *Ortiz et al.* teaches analyzing images separately. The applicants repeat the remarks made above regarding *Ortiz et al.* and submit that *Ortiz et al.* clearly does not teach analyzing each image separately.

The examiner is also incorrect in his interpretation of *Kanzaka et al.* The examiner states that *Kanzaka et al.* teaches that “an image or video signal v” from a video camera 2 is sent to be processed, and then makes the assumption from this teaching that an “image” is processed. Although *Kanzaka et al.* uses the phrase “an image or video signal v”, the phrase “image” and “video” are being used interchangeably to describe only one signal “v”, which is a video signal output of the video camera 2. *Kanzaka et al.* does not differentiate between an image signal and a video signal in its use of terminology. If the phrase “image” was meant to describe a separate type of signal, there would have been another element designator besides only using “v”. Additionally, the modifier “an” before the collective phrase “image or video signal” designates the terms as describing the same signal. Further, *Kanzaka et al.* never refers to an image signal by itself, but instead all future references to the designator “v” refer to it as a video signal. Thus *Kanzaka et al.* teaches that within the inspection machine 3, it is the output video signal v from the video camera 2, made up of multiple images, that is supplied to a flaw detection unit 4 for analysis.

Regardless, *Kanzaka et al.* never discloses how the flaw detection unit 4 detects a defect to output the detections signal d. The flaw detection unit 4 could be comparing multiple images to detect defects on the inspected object. The examiner makes the conclusion that, from the *Kanzaka et al.*, reference taken as a whole, there is no indication that a plurality of “images” are processed together, or as a group. The examiner also makes the conclusion that all indications are that individual images are processed separately, or one at a time, to detect defects. What surprises the applicants is how the examiner makes these conclusions but points to no evidence, or

“indications”, for making them. Additionally, it is not up to the applicants to show that *Kanzaka et al.* teaches analyzing multiple images to detect defects. Instead, to show *prima facie* obviousness, it is up to the examiner to show that *Kanzaka et al.* expressly or inherently teaches analyzing individual images separately. The examiner conveniently makes the unsupported conclusion that the *Kanzaka et al.* “reference as a whole” teaches individual image analysis. However, the examiner cites nothing in the *Kanzaka et al.* that, “taken as a whole”, would suggest this conclusion. Regardless, this is a flawed analysis. We start with the statement that *Kanzaka et al.* is silent with respect to how the analysis of the video signal *v* is done. This statement alone should stop the debate because without stating whether the detection unit 4 analyzes each image separately, *Kanzaka et al.* cannot be said to expressly disclose the claim requirement of processing or analyzing each image separately. There is also no possibility of inherent disclosure as there exist any number of possibilities as to how the flaw detection unit 4 detects defects. Thus, there is no *prima facie* case of obviousness because *Ortiz et al.* and *Kanzaka et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 15, 17, 18, 21, 22, 23, 31, and 32.

The applicants respectfully submit that a *prima facie* case of obviousness has not been established with respect to claims 15, 17, 18, 21, 22, 23, 31, and 32 because there is no motivation to combine *Kanzaka et al.* with *Ortiz et al.* Specifically, *Ortiz et al.* teaches away from using the processor in *Kanzaka et al.* *Ortiz et al.* teaches using a computer to analyze not only the outside, but also specifically on the inside of the inspected object. *Ortiz et al.* is very specific about this ability as a distinct advantage of the *Ortiz et al.* system. *Kanzaka et al.*, however, only teaches a processor capable of determining the existence or not of defects on the surface of the inspected object. Obviously, using the processor of *Kanzaka et al.* with the *Ortiz et al.* system would not give the *Ortiz et al.* system the ability to determine the existence of defects on the inside of the inspected object. Thus, there is no *prima facie* case of obviousness because *Ortiz et al.* distinctly teaches away from using the *Kanzaka et al.* processor that cannot detect defects on the inside of the inspected object. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 15, 17, 18, 21, 22, 23, 31, and 32.

C. Rejection Of Claim 41 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Ortiz et al.* And *Kanzaka et al.* As Applied To Claim 31, And Further In Combination With *Puffer*

The examiner rejected claim 41 Under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* as applied to claim 31, and further in combination with *Puffer*.

The applicants repeat the remarks made above for claim 31. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.¹⁶ As claim 41 depends directly from claim 31, claim 41 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to claim 41 as well.

D. Rejection Of Claim 24 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Ortiz et al.* And *Kanzaka et al.* As Applied To Claim 15, And Further In Combination With *Hametner et al.*

The examiner rejected claim 24 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* as applied to claim 15, and further in combination with *Hametner et al.*.

The applicants repeat the remarks made above for claim 15. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.¹⁷ As claim 24 depends indirectly from claim 15, claim 24 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to claim 24 as well.

E. Rejection Of Claim 25 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Ortiz et al.* And *Kanzaka et al.* As Applied To Claim 15, And Further In Combination With *Hametner et al.*

The examiner rejected claim 25 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* as applied to claim 15, and further in combination with *Hametner et al.*

¹⁶ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

¹⁷ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

The applicants repeat the remarks made above for claim 15. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.¹⁸ As claim 25 depends indirectly from claim 15, claim 25 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to claim 25 as well.

F. Rejection Of Claim 16 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Ortiz et al.* And *Kanzaka et al.* As Applied To Claim 15, And Further In Combination With *Greenwood et al.*

The examiner rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* as applied to claim 15, and further in combination with *Greenwood et al.*

The applicants repeat the remarks above for claim 15. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.¹⁹ As claim 16 depends from claim 15, claim 16 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to claim 16 as well.

G. Rejection Of Claims 19 And 20 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Ortiz et al.* And *Kanzaka et al.* As Applied To Claim 15, And Further In Combination With *Chiu et al.*

The examiner rejected claims 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Ortiz et al.* and *Kanzaka et al.* as applied to claim 15, and further in combination with *Chiu et al.*

The applicants repeat the remarks made above for claim 15. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁰ As claims 19 and 20 depend from claim 15, claims 19 and 20 are also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to claims 19 and 20 as well.

¹⁸ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

¹⁹ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

²⁰ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

H. Rejection Of Claims 1-3, 5-7, And 9 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.* And *Kanzaka et al.*, And Further In Combination With *Morrison et al.*

1. Examiner's Comments

The examiner rejected claims 1-3, 5-7, and 9 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.* (U.S. Patent No. 5,767,671A) and *Kanzaka et al.*, and further in combination with *Morrison et al.*

2. Claims 1-3, 5-7, And 9

The applicants respectfully submit that a *prima facie* case of obviousness has not been established because the prior art references do not teach or suggest all the claim limitations.

Although the examiner suggests otherwise, *Kanzaka et al.* does not teach analyzing or processing each image separately, as claims 1-3, 5-7, and 9 require. The applicants repeat the remarks above regarding *Kanzaka et al.* with respect to claim 31. The examiner states that *Morrison et al.* is only used to suggest the combination of a frame grabber to digitize individual images for further analysis by the processor of *Kanzaka et al.* Therefore, the examiner's addition of *Morrison et al.* does not change the remarks made above with regard to *Kanzaka et al.* failing to teach a processor that analyzes individual images because, although individual images are digitized, there are still multiple images being sent to the processor of *Kanzaka et al.* Thus, there is no *prima facie* case of obviousness because *McCoy et al.*, *Kanzaka et al.*, and *Morrison et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 1-3, 5-7, and 9.

In the examiner's comments, the examiner suggests that even if *Kanzaka et al.* does not teach a processor that analyzes images individually, then *Morrison et al.* does. The applicants submit this also fails to establish a *prima facie* case of obviousness because there is no motivation to modify *Kanzaka et al.* with the processor of *Morrison et al.* This is because *Kanzaka et al.* specifically teaches away from using the processor *Morrison et al.* *Kanzaka et al.* teaches analyzing the entire surface of the inspected device visible to the camera for defects such as cracks, etc. The processor of *Morrison et al.* only calculates, and only can calculate, the position of the edge of the inspected device. The *Morrison et al.* processor does not and cannot analyze the entire visible surface of the inspected device for defects. If the *Morrison et al.* processor was used,

Kanzaka et al. would obviously not be able to detect defects on the entire visible surface of the inspection object. Thus *Kanzaka et al.* clearly teaches away from using the *Morrison et al.* processor. Thus, there is no *prima facie* case of obviousness because *Kanzaka et al.* distinctly teaches away from using the *Morrison et al.* processor that cannot detect defects across the entire surface of the inspection object. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 1-3, 5-7, and 9.

I. Rejection Of Claim 43 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Morrison et al.* As Applied To Claim 1, And Further In Combination With *Terry et al.*

The examiner rejected claim 43 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Morrison et al.* as applied to claim 1, and further in combination with *Terry et al.*

The applicants repeat the remarks made above for claim 1. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²¹ As claim 43 depends directly from claim 1, claim 43 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 43 as well.

J. Rejection Of Claims 44 And 45 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, *Morrison et al.*, and *Terry et al.* As Applied To Claim 43, And Further In Combination With *Hametner et al.*

The examiner rejected claims 44 and 45 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, *Morrison et al.*, and *Terry et al.* as applied to claim 43, and further in combination with *Hametner et al.*

The applicants repeat the remarks made above for claim 1. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²² As claims 44 and 45 depend indirectly from claim 1, claims 44 and 45 are also nonobvious under 35

²¹ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

²² *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claims 44 and 45 as well.

K. Rejection Of Claim 8 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, and *Morrison et al.* As Applied To Claim 1, And Further In Combination With *Hametner et al.*

The examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Morrison et al.* as applied to claim 1, and further in combination with *Hametner et al.*

The applicants repeat the remarks made above for claim 1. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²³ As claim 8 depends directly from claim 1, claim 8 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 8 as well.

L. Rejection Of Claim 4 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Morrison et al.* As Applied To Claim 1, And Further In Combination With *Endsley et al.*

The examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Morrison et al.* as applied to claim 1, and further in combination with *Endsley et al.* (U.S. Patent No. 6,005,613).

The applicants repeat the remarks made above for claim 1. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁴ As claim 4 depends directly from claim 1, claim 4 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 4 as well.

M. Rejection of claim 26 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Puffer* and *Morrison et al.*

1. Examiner comments

The examiner rejected claim 26 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Puffer* and *Morrison et al.*

²³ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

²⁴ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

2. Claim 26

The applicants respectfully submit that a *prima facie* case of obviousness has not been established because there is no motivation to combine *Puffer* with *Morrison et al.* There is no motivation because *Puffer* specifically teaches away from using the processing system taught by *Morrison et al.*

Morrison et al. teaches an assembly for determining the position of the edge of an inspection device. The apparatus includes a video camera that sends a video stream of information from the two-dimensional orthogonal array of rows and columns one row at a time. The video camera is connected to a frame grabber 9 comprising a digitizer and frame store. The frame grabber 9 is interfaced with an appropriate computer 10 that is connected to a monitor 11. The vision processing means collects, stores, and analyzes the information provided by the camera. In operation, an image of the strip is produced on the sensor array, transmitted by the camera as a video signal. This signal is then converted to a digital signal that is stored in a computer. The data is transferred to an appropriately sized array in the computer memory, the files (rows and columns) of which correspond to those of the sensor elements and of the original picture captured by the camera. A position algorithm recognizes the edges of the strip from the relatively small scale derived radiation profile. From the edge positions, the strip width can then be calculated. The actual position of the strip edge from a reference point can also be calculated.

Morrison et al. analyzes the sum of the gray scale values of the sensor elements of each row of pixels to determine the relative position of the edge of the article being examined. *Puffer* teaches analyzing the entire surface of the inspected device visible to the camera for defects such as cracks, etc. The processor of *Morrison et al.* only calculates, and only can calculate, the position of the edge of the inspected device. The *Morrison et al.* processor does not and cannot analyze the entire visible surface of the inspected device for defects. If the *Morrison et al.* processor was used, *Puffer* would obviously not be able to detect defects on the entire visible surface of the inspection object. Thus *Puffer* clearly teaches away from using the *Morrison et al.* processor. Thus, there is no *prima facie* case of obviousness because *Puffer* distinctly teaches away from using the *Morrison et al.* processor that cannot detect defects across the entire surface of the inspection object. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 26.

Applicants also respectfully submit that a *prima facie* case of obviousness has not been established with respect to claim 26 because the prior art references do not teach or suggest all the claim limitations. Specifically, *Puffer* does not create images of the tubing surface to be analyzed. *Puffer* includes plurality of white light sources 26 that project a beam of light 28 onto the surface of cable 16. The light beams 28 cumulatively form an annular band 30 on the surface of cable 16 that is irradiated by the light. If a pip 22 appears in the coated cable in the irradiated band 30, the incident light will be scattered in numerous directions. A deflecting mirror 34 and an imaging lens 36 collects the scattered light, only from the pip 22, and deflects that light onto an anti-blooming detector array 38. Thus, the only “image” that is created by *Puffer* to be analyzed is that of the “pip” itself. Because no light is picked up by the sensor in *Puffer* of the general surface of the inspection device, *Puffer* does not create an “image” of the inspection device. Therefore, *Puffer* does not teach creating an image of the tubing surface. Thus, there is no *prima facie* case of obviousness because the references do not teach every limitation of the claim. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 26.

Third, *Puffer* does not disclose comparing the size of an anomaly against a user-defined threshold. Instead, *Puffer* discloses comparing the amount or intensity of light reflected onto and registered by each individual pixel against a user-defined threshold. *Puffer* discloses analytical electronics 44 that include the slicer 48, the counter 52, and the comparator 54. Analytical electronics block 44 includes scanning control electronics 45 providing a scanning raster for scanning the pixel outputs of detector 38. The scanned signal of light reflected from the inspected object is extended to the slicer 48 that provides an output only if the intensity of the light signal for a respective pixel exceeds a threshold that is pre-selected to reject low-level light from acceptable cable surface. The output of the slicer 48 is transmitted to a counter 52 and a comparator 54. The counter 52 increments each time a pixel senses light above the threshold level and provides an output 55 to an alarm 56 each time a pre-selected count is reached. The intensity of light reflected from a “pip” as registered by any one pixel depends on the angle of reflection of the light in relation to the detector 38, and not the actual size of the “pip” itself. For example, there could be a “pip” of a large size that, because of its configuration, does not reflect as intense an amount of light onto a given pixel as a smaller “pip” that reflects a more intense amount of light onto the given

pixel. This is true even though the larger “pip” may reflect light onto more pixels than the smaller “pip”. Although both may reflect light with an intensity to surpass the user-defined threshold, the intensity of light reflected onto any given pixel is not necessarily indicative of the size of the “pip” itself. Rather, the size of the “pip” would be more indicated by the amount of light reflected onto all the pixels together. But *Puffer* does not teach comparing the amount of light reflected on all the pixels against a user-defined threshold. Thus, *Puffer* does not teach comparing the size of any anomaly against a user-defined threshold. Thus, there is no *prima facie* case of obviousness because *Puffer*, and *Morrison et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 26.

N. Rejection Of Claims 27 And 29 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Puffer* And *Morrison et al.* As Applied To Claim 26, And Further In Combination With *Ortiz et al.* And *Vild et al.*

The examiner rejected claims 27 and 29 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Puffer* and *Morrison et al.* as applied to claim 26, and further in combination with *Ortiz et al.* and *Vild et al.* (U.S. Patent No. 4,123,708A).

The applicants repeat the remarks made above for claim 26. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁵ As claims 27 and 29 depend from claim 26, claims 27 and 29 are also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claims 27 and 29 as well.

O. Rejection Of Claims 28 And 30 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Puffer*, *Morrison et al.*, *Ortiz et al.*, And *Vild et al.* As Applied To Claim 27 Above, And Further In Combination With *Kanzaka et al.*

The examiner rejected claims 28 and 30 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Puffer*, *Morrison et al.*, *Ortiz et al.*, and *Vild et al.* as applied to claim 27 above, and further in combination with *Kanzaka et al.*

²⁵ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

The applicants repeat the remarks made above for claim 26. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁶ As claims 28 and 30 depend from claim 26, claims 28 and 30 are also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claims 28 and 30 as well.

P. Rejection Of Claim 13 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.* And *Kanzaka et al.*, And Further In Combination With *Hametner et al.* And *Reis et al.*

The examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.* and *Kanzaka et al.*, and further in combination with *Hametner et al.* and *Reis et al.* (U.S. Patent No. 4,311,905A).

The applicants repeat the remarks made above for claim 1. Applicants respectfully submit that there is no *prima facie* case of obviousness because *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, and *Reis et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 13.

Q. Rejection Of Claim 14 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, And *Reis et al.* As Applied To Claim 13 Above, And Further In Combination With *Garcia et al.*

The examiner rejected claim 36 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, and *Reis et al.* as applied to claim 13 above, and further in combination with *Garcia et al.* (U.S. Patent No. 5,923,771A).

The applicants repeat the remarks made above for claim 13. If an independent claim is not obvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁷ As claim 14 depends from claim 13, claim 14 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 14 as well.

²⁶ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

²⁷ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

R. Rejection Of Claim 36 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, And *Reis et al.* As Applied To Claim 13 Above, And Further In Combination With *Ortiz et al.*

The examiner rejected claim 36 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, and *Reis et al.* as applied to claim 13 above, and further in combination with *Ortiz et al.*

The applicants repeat the remarks made above for claim 1. There is no *prima facie* case of obviousness because *McCoy et al.*, *Kanzaka et al.*, *Hametner et al.*, *Reis et al.*, and *Ortiz et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 36.

S. Rejection Of Claims 31, 34, And 37 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.* And *Kanzaka et al.*, And Further In Combination With *Ortiz et al.*

The examiner rejected claims 31, 34, and 37 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.* and *Kanzaka et al.*, and further in combination with *Ortiz et al.*

Applicants repeat the remarks made above for claims 1 and 31 regarding the combination of the three references. There is no *prima facie* case of obviousness because *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claims 31.

As claims 34 and 37 depend from claim 31, a *prima facie* case of obviousness also does not exist with respect to claims 34 and 37. Therefore, the applicants request that the examiner withdraw the rejection with respect to claims 34 and 37 as well.

T. Rejection Of Claim 33 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Ortiz et al.* As Applied To Claim 31, And Further In Combination With *Hametner et al.*

The examiner rejected claim 33 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* as applied to claim 31, and further in combination with *Hametner et al.*.

The applicants repeat the remarks made above for claim 31. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁸ As claim 33 depends from claim 31, claim 33 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 33 as well.

U. Rejection Of Claim 42 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Ortiz et al.* As Applied To Claim 31, And Further In Combination With *Husseiny*.

The examiner rejected claim 42 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* as applied to claim 31, and further in combination with *Husseiny*.

The applicants repeat the remarks made above for claim 31. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.²⁹ As claim 42 depends from claim 31, claim 42 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 42 as well.

V. Rejection Of Claim 35 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Ortiz et al.* As Applied To Claim 34, And Further In Combination With *Vild et al.*

The examiner rejected claim 35 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* as applied to claim 31, and further in combination with *Vild et al.*

The applicants repeat the remarks made above for claim 31. If an independent claim is non obvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.³⁰ As claim 35 depends from claim 31, claim 35 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 35 as well.

²⁸ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

²⁹ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

³⁰ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

W. Rejection Of Claim 38 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Ortiz et al.* As Applied To Claim 31, And Further In Combination With *McCafferty et al.*

The examiner rejected claim 38 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* as applied to claim 31, and further in combination with *McCafferty et al.* (U.S. Patent No. 6,273,188 B1).

The applicants repeat the remarks made above for claim 31. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.³¹ As claim 38 depends from claim 31, claim 38 is also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claim 38 as well.

X. Rejection Of Claims 39 And 40 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *McCoy et al.*, *Kanzaka et al.*, And *Ortiz et al.* As Applied To Claim 31, And Further In Combination With *Morrison et al.*

The examiner rejected claims 39 and 40 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *McCoy et al.*, *Kanzaka et al.*, and *Ortiz et al.* as applied to claim 31, and further in combination with *Morrison et al.*

The applicants repeat the remarks made above for claim 31. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.³² As claims 39 and 40 depend from claim 31, claims 39 and 40 are also nonobvious under 35 U.S.C. § 103(a). Therefore, the applicants request that the examiner withdraw the rejection with respect to dependent claims 39 and 40 as well.

Y. Rejection Of Claim 13 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Lam* And *Kanzaka et al.*, And Further In Combination With *Hametner et al.*

1. Examiner comments

The examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Lam* (U.S. Patent No. 5,043,663) and *Kanzaka et al.*, and further in combination with *Hametner et al.*.

³¹ *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

³² *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

2. Claim 13

The applicants respectfully submit that a *prima facie* case of obviousness has not been established with respect to claim 13 because the prior art references do not teach or suggest all the claim limitations. Specifically, neither *Lam* nor *Kanzaka et al.* teach analyzing or processing each image separately, as claim 13 requires.

The examiner is incorrect in his interpretation of *Ortiz et al.* The examiner states that *Ortiz et al.* teaches analyzing images separately. The applicants repeat the remarks made above regarding *Ortiz et al.* and submit that *Ortiz et al.* clearly does not teach analyzing each image separately.

The examiner is also incorrect in his interpretation of *Kanzaka et al.* The examiner states that *Kanzaka et al.* teaches that “an image or video signal v” from a video camera 2 is sent to be processed, and then makes the assumption from this teaching that an “image” is processed. Although *Kanzaka et al.* uses the phrase “an image or video signal v”, the phrase “image” and “video” are being used interchangeably to describe only one signal “v”, which is a video signal output of the video camera 2. *Kanzaka et al.* does not differentiate between an image signal and a video signal in its use of terminology. If the phrase “image” was meant to describe a separate type of signal, there would have been another element designator besides only using “v”. Additionally, the modifier “an” before the collective phrase “image or video signal” designates the terms as describing the same signal. Further, *Kanzaka et al.* never refers to an image signal by itself, but instead all future references to the designator “v” refer to it as a video signal. Thus *Kanzaka et al.* teaches that within the inspection machine 3, it is the output video signal v from the video camera 2, made up of multiple images, that is supplied to a flaw detection unit 4 for analysis.

Regardless, *Kanzaka et al.* never discloses how the flaw detection unit 4 detects a defect to output the detections signal d. The flaw detection unit 4 could be comparing multiple images to detect defects on the inspected object. The examiner makes the conclusion that, from the *Kanzaka et al.*, reference taken as a whole, there is no indication that a plurality of “images” are processed together, or as a group. The examiner also makes the conclusion that all indications are that individual images are processed separately, or one at a time, to detect defects. What surprises the applicants is how the examiner makes these conclusions but points to no evidence, or “indications”, for making them. Additionally, it is not up the applicants to show that *Kanzaka et*

al. teaches analyzing multiple images to detect defects. Instead, to show *prima facie* obviousness, it is up to the examiner to show that *Kanzaka et al.* expressly or inherently teaches analyzing individual images separately. The examiner conveniently makes the unsupported conclusion that the *Kanzaka et al.* “reference as a whole” teaches individual image analysis. However, the examiner cites nothing in the *Kanzaka et al.* that, “taken as a whole”, would suggest this conclusion. Regardless, this is a flawed analysis. We start with the statement that *Kanzaka et al.* is silent with respect to how the analysis of the video signal *v* is done. This statement alone should stop the debate because without stating whether the detection unit 4 analyzes each image separately, *Kanzaka et al.* cannot be said to expressly disclose the claim requirement of processing or analyzing each image separately. There is also no possibility of inherent disclosure as there exist any number of possibilities as to how the flaw detection unit 4 detects defects. Thus, there is no *prima facie* case of obviousness because *Lam* and *Kanzaka et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 13.

Z. Rejection Of Claim 36 Under 35 U.S.C. § 103(a) As Being Unpatentable Over The Combination Of *Lam*, *Kanzaka et al.*, And *Hametner et al.* As Applied To Claim 13, And Further In Combination With *Ortiz e al.*

The examiner rejected claim 36 under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Lam*, *Kanzaka et al.*, and *Hametner et al.* as applied to claim 13, and further in combination with *Ortiz e al.*

The applicants repeat the remarks made above for claims 1, 13, 15, and 31. There is no *prima facie* case of obviousness because there is no motivation to combine *Kanzaka et al.* and *Ortiz et al.* There is also no *prima facie* case of obviousness because *Lam*, *Kanzaka et al.*, *Hametner et al.*, and *Ortiz et al.* fail to teach all of the limitations of the claims. The applicants therefore respectfully submit that rejection is unsupported by the art and request that the examiner withdraw the rejection with respect to claim 36.

IV. STATEMENT REGARDING CLAIMS

The applicants have argued the allowability of the claims by addressing the comments by the examiner in this paper as well as previously during the prosecution of this application. By doing so, the applicants are in no way limiting their ability to argue additional points of novelty regarding the independent claims or dependent claims at a later date.

CONCLUSION

The applicants respectfully request reconsideration the pending claims and that a timely Notice of Allowance be issued in this case. If the examiner feels that a telephone conference would expedite the resolution of this case, he is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, the applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. There may also be other distinctions between the claims and the prior art that have yet to be raised, but that may be raised in the future.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769 (ref. 1391-27300) of Conley Rose, P.C., Houston, Texas.

Respectfully submitted,

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